

Completed Pollution Prevention Project Case Study

United States Department of Energy
Office of Environmental Management
Fact Sheet

Rebuilt Radio Frequency Power Tubes Save Money Los Alamos National Laboratory

Original Problem

A variety of unique types and sizes of high power electron tubes are used to support the linear accelerator projects at the Los Alamos Neutron Science Center (LANSCE).

LANSCE has a limited number of these tubes available as replacements, and the manufacturers require up to a year to build some of the custom tubes. The experiment schedule can be disrupted by lack of parts.

The Project Solution

Many of the tube manufacturers will accept old tubes that have failed and rebuild them for reuse at LANSCE or other sites.

Value of Improvement

Rebuilt tubes cost an average of one third less than new tubes. LANSCE saves an estimated \$100,000 annually by sending in old tubes to be rebuilt instead of ordering new tubes. Manufacturers can rebuild a salvageable tube in about half the time it takes to build a new tube. Materials such as steel, oxygen-free copper, silver, mica, and ceramic may be reused several times in rebuilt tubes. During the rebuilding process, the manufacturers can often determine the cause of failure, and this data is valuable to researchers at LANSCE. If the old tubes are rebuilt, then they do not become waste. About 500 pounds of hazardous waste per year is now avoided.

Lifecycle Waste Reduction

Lifecycle Waste Reduction	~500 lb / year
Commencement Date	2002
Project Useful Life (Years)	Indefinite



DOE Monetary Benefits

Total Project Cost	NA
Lifecycle Savings	~\$100,000 / year
Return on Investment	NA

Benefits At-A-Glance

- Rebuilding tubes allows valuable materials to be reused and prevents ~500lb of hazardous waste annually.
- Rebuilding old tubes is about twice as fast and about three times cheaper than building new tubes from scratch.
- LANSCE saves about \$100,000 per year with its initiative to have old tubes rebuilt whenever possible.

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	Summary Data
Priority Area:	Waste Minimization Projects
Project Type:	Source Reduction
Total Project Cost:	NA
Lifecycle Savings:	~\$100,000 annually in procurement costs.
Implementing Group:	Radio Frequency Accelerator Technology Group
Benefiting Group:	Radio Frequency Accelerator Technology Group
Useful Life Years:	Indefinite
Return on Investment:	NA
Lifecycle Waste Reduction:	~500 pounds of hazardous waste per year.
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